GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA

UNSTARRED QUESTION NO:6395
ANSWERED ON:12.04.2017
Portable Kit to Check Water Contamination
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Will the Minister of ATOMIC ENERGY be pleased to state:

(a)whether the Bhabha Atomic Research Centre has developed a portable kit to check chromium contamination in water in five minutes;

(b)if so, the details thereof;

(c)whether the BARC's kit is simple, user friendly, quick and cost effective for onsite application; and

(d)if so, whether the Government has planned to market this product in public interest and if so, the details thereof and if not, the reasons therefor?

Answer

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (Dr. JITENDRA SINGH):

(a)Yes, Madam. National Centre for Compositional Characterisation of Materials (NCCCM), Chemistry Group, BARC, located at Hyderabad has developed a portable visual detection kit for detection of hexavalent chromium [Cr(VI)] between 5 to 500 ng/ml (ppb) range in water within 5 minutes.

Chromium exists in the environment primarily in two valence states, trivalent chromium (Cr III) and hexavalent chromium (Cr VI). Cr (III) is biologically important element and needed for glucose and lipid metabolism. Cr (VI), however, is considered toxic and IARC (International Agency for Research in Cancer, WHO) has classified it as a group 1 agent, defined as carcinogenic to humans.

(b) According to the method developed, three reagents kept inside different bottles are to be added to the clear water sample. Reagent 1 and Reagent 2 are added and mixed for two minutes. The third reagent is then added and mixed thoroughly (shaken for 1-2 minutes). Within 5 minutes, a pink color develops in the top layer and the intensity of this is compared by visual inspection to obtain the Cr(VI) range in water.

By this method Cr(VI) can be detected in drinking water sources such as ground water, lake water, river water, etc. According to Indian standard IS10500, maximum permissible limit for Cr(VI) in drinking water is 50 ng/mL and as per United States Environmental Protection Agency (USEPA) it is 10 ng/mL and the kit meets the requirements of both the standards.

(c)Yes, Madam.

(d)Yes, Madam. the technology of this kit has been transferred to M/S LTek Systems, Nagpur for commercialization of the product for societal benefit.

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